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**Exhibit R-2, RDT&E Budget Item Justification:** PB 2022 Air Force **Date:** May 2021

|  |   |
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| <b>Appropriation/Budget Activity</b><br>3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i> | <b>R-1 Program Element (Number/Name)</b><br>PE 0207444F / <i>Tactical Air Control Party-Mod</i> |
|--|---|

| COST (\$ in Millions)                  | Prior Years | FY 2020 | FY 2021 | FY 2022 Base | FY 2022 OCO | FY 2022 Total | FY 2023 | FY 2024 | FY 2025 | FY 2026 | Cost To Complete | Total Cost |
|--|-------------|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| Total Program Element                  | -           | 4.019   | 12.882  | 13.081       | 0.000       | 13.081        | -       | -       | -       | -       | -                | -          |
| 676013: <i>Equipment Modernization</i> | -           | 4.019   | 12.882  | 13.081       | 0.000       | 13.081        | -       | -       | -       | -       | -                | -          |

**A. Mission Description and Budget Item Justification**

Tactical Air Control Party (TACP) are Air Force units manned by Special Warfare airmen (previously known as Battlefield Airmen) who advise Army Ground Commanders and plan, request and control air power in support of army ground maneuver operations. These capabilities are employed at all echelons of Army organizations by: Air Support Operation Center (ASOC) TACPs, Division TACPs, Brigade TACPs, Battalion TACPs, and dismounted (on foot) Joint Terminal Attack Controllers (JTAC) deployed with Army companies or scout teams on the front lines. TACPs coordinate, request, and control Strike aircraft, Joint fires, airlift support and intelligence, surveillance, and reconnaissance (ISR) support for Army combat operations, and they provide ground communications support for federal disaster response and Homeland Defense operations. TACPs deploy with their aligned Army units and operate in a variety of environments including fixed operations from ASOCs and Tactical Operations Centers (TOC), mobile operations in tactical vehicles, and dismounted operations with Army infantry patrols.

The purpose of the Tactical Air Control Party - Modernization (TACP-M) program is to provide TACPs voice, data and video communications, targeting and battlefield awareness/management capabilities across all domains. Improved targeting and data communications capabilities provide more accurate target coordinates, reduce Close Air Support (CAS) response times, and reduce the probability of fratricide or collateral damage using networked data communication.

The TACP-M program support includes addressing frequent TACP combat deployments that sometimes lead users to change equipment procurement priorities to support urgent operational needs and respond to evolving threat environments. The TACP-M program works with the Special Warfare (SW) program office to procure dismounted equipment and software. This teaming arrangement helps standardize battlefield airmen equipment, improve efficiency by consolidating acquisition efforts, and often reduces unit costs by increasing procurement quantities.

The TACP-M program provides and modernizes capabilities in the following four major areas: (1) ASOC/TOC systems (used in fixed and mobile operations centers), (2) Vehicle Mounted Systems (used in TACP tactical vehicles) and semi-mobile operations, (3) Dismounted Systems (used by JTACs during dismounted infantry operations), and (4) Close Air Support System (CASS) software.

ASOC provides execution management and integration with fires systems, utilizes Air Operations Center (AOC) (i.e., the Air Tasking Order (ATO)) inputs and archives data, provides a visual depiction and will assist in the management of the forward battlespace/area of contention in coordination with DOD, non-governmental, and international partners. It additionally provides TACP planning documents and data management/server capability for integrating ISR management and video feeds, managing Air Tasking real time, and receiving Battle Damage Assessment (BDA) inputs. The ASOC will provide Joint All Domain Command and Control (JADC2) capabilities that will be leader-centric, network enabled, and ready to operate in complex and degraded information environments; to include the ability to support/execute air taskings should the AOC required assistance during periods of degraded operations

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| <b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2022 Air Force   |   | <b>Date:</b> May 2021 |
| <b>Appropriation/Budget Activity</b><br>3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>   | <b>R-1 Program Element (Number/Name)</b><br>PE 0207444F / <i>Tactical Air Control Party-Mod</i> |                       |
| <p>Dismounted and ASOC/TOC/Mounted (ATM) software meets the technical needs of implementing TACP C2 capabilities in operational environments. Software supports a wide variety of radio systems and other emerging systems that are expected to be employed by TACPs in the future. Future upgrades are necessary to maintain interoperability with strike aircraft, joint fire support systems, and emerging data networking waveforms. Software upgrades provide a modular architecture for digital communications, messaging, data handling, hardware management, and targeting, and battle space awareness capabilities. The key characteristic of the software will be the agile development of Open System, Modular architectures that will enable rapid integration with new end user devices (such as laser range finders, radios, Full Motion Video, targeting and laptops/hand held computing devices, tactical gateway's and rapid development, testing and fielding of new mission capability modules to meet immediate and future requirements. The ASOC will be aligned and integrated with the Advanced Battle Management System to ensure synergy of effort.</p> <p>CASS software provides required advanced communication, advanced targeting capability, and significant interoperability improvements for mobile computing devices used by vehicle-mounted systems and stationary systems used in operations centers. TACP CASS software enables digital data communications with joint Command and Control (C2) nodes, other TACPs, strike aircraft, and Army C2 and Fire Support systems. It includes interfaces with TOC, ASOC, and JTAC radios, and targeting devices, interoperability across the Dismounted, vehicle-mounted systems, and ASOC/TOC mission sets. It also provides battlespace awareness capabilities needed to plan, request, coordinate, and control CAS in support of ground maneuver forces. The CASS software interfaces with all TACP-M components and provides interoperability with joint strike aircraft (F-35, A-10, F-16, F-15, F/A-18, AV-8B, B-52, etc.), Remotely Piloted Aircraft (RPA), artillery fire support systems, network-enabled weapons, and C2 nodes. To enable data communications with those systems / nodes, CASS incorporates several communications protocols including Variable Message Format (VMF), Link 16, Situational Awareness Data Link (SADL), Marine Tactical System (MTS), and U.S. Message Text Format (USMTF); along with emerging waveform technologies.</p> <p>Funding supports Dismount, ATM, and ASOC software to address: interfaces with new dismount requirements, evolution of existing Tactical Assault Kit (TAK) software which provides a framework for the dismounted software, ASOC modernization (interoperability and hardware/ software interfaces), changes to Army fires support systems, changes to AOC Theater Battle Management Core Systems , updates for fielded versions, new joint Digitally-Aided CAS (DACAS) standards, technical support to operators employing the software, and system prototyping for required future ASOC/TOC/Mounted system capabilities.</p> <p>This program element may include necessary civilian pay expenses required to manage, execute, and deliver CASS weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605831F. In FY20 \$0.000M was expended for civilian pay expenses in this program element, and in FY21 \$0.000M is forecasted for civilian pay expenses in this program element.</p> <p>This program is in Budget Activity 7, Operational System Development, because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.</p> <p>This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.</p> |   |                       |

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| <b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2022 Air Force | <b>Date:</b> May 2021 |
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| <b>Appropriation/Budget Activity</b><br>3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i> | <b>R-1 Program Element (Number/Name)</b><br>PE 0207444F / <i>Tactical Air Control Party-Mod</i> |
|--|---|

| <b>B. Program Change Summary (\$ in Millions)</b> | <b><u>FY 2020</u></b> | <b><u>FY 2021</u></b> | <b><u>FY 2022 Base</u></b> | <b><u>FY 2022 OCO</u></b> | <b><u>FY 2022 Total</u></b> |
|---|-----------------------|-----------------------|----------------------------|---------------------------|-----------------------------|
| Previous President's Budget                       | 4.117                 | 12.906                | 13.976                     | 0.000                     | 13.976                      |
| Current President's Budget                        | 4.019                 | 12.882                | 13.081                     | 0.000                     | 13.081                      |
| Total Adjustments                                 | -0.098                | -0.024                | -0.895                     | 0.000                     | -0.895                      |
| • Congressional General Reductions                | 0.000                 | -0.024                |                            |                           |                             |
| • Congressional Directed Reductions               | 0.000                 | 0.000                 |                            |                           |                             |
| • Congressional Rescissions                       | 0.000                 | 0.000                 |                            |                           |                             |
| • Congressional Adds                              | 0.000                 | 0.000                 |                            |                           |                             |
| • Congressional Directed Transfers                | 0.000                 | 0.000                 |                            |                           |                             |
| • Reprogrammings                                  | 0.000                 | 0.000                 |                            |                           |                             |
| • SBIR/STTR Transfer                              | -0.098                | 0.000                 |                            |                           |                             |
| • Other Adjustments                               | 0.000                 | 0.000                 | -0.895                     | 0.000                     | -0.895                      |

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| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Air Force |                    |                |                |                     |   |                      |                |                |   | <b>Date:</b> May 2021 |                         |                   |
| <b>Appropriation/Budget Activity</b><br>3600 / 7                        |                    |                |                |                     | <b>R-1 Program Element (Number/Name)</b><br>PE 0207444F / <i>Tactical Air Control Party-Mod</i> |                      |                |                | <b>Project (Number/Name)</b><br>676013 / <i>Equipment Modernization</i> |                       |                         |                   |
| <b>COST (\$ in Millions)</b>  | <b>Prior Years</b> | <b>FY 2020</b> | <b>FY 2021</b> | <b>FY 2022 Base</b> | <b>FY 2022 OCO</b>  | <b>FY 2022 Total</b> | <b>FY 2023</b> | <b>FY 2024</b> | <b>FY 2025</b>  | <b>FY 2026</b>        | <b>Cost To Complete</b> | <b>Total Cost</b> |
| 676013: <i>Equipment Modernization</i>                                  | -                  | 4.019          | 12.882         | 13.081              | 0.000   | 13.081               | -              | -              | -   | -                     | -                       | -                 |
| Quantity of RDT&E Articles  | -                  | -              | -              | -                   | -   | -                    | -              | -              | -   | -                     |                         |                   |

**A. Mission Description and Budget Item Justification**

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ASOC provides execution management and integration with fires systems, utilizes Air Operations Center (AOC) (i.e., the Air Tasking Order (ATO)) inputs and archives data, provides a visual depiction and will assist in the management of the forward battlespace/area of contention in coordination with DOD, non-governmental, and international partners. It additionally provides TACP planning documents and data management/server capability for integrating ISR management and video feeds, managing Air Tasking real time, and receiving Battle Damage Assessment (BDA) inputs. The ASOC will provide Joint All Domain Command and Control (JADC2) capabilities that will be leader-centric, network enabled, and ready to operate in complex and degraded information environments; to include the ability to support/execute air taskings should the AOC required assistance during periods of degraded operations.

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| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Air Force | <b>Date:</b> May 2021 |
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|--|---|---|
| <b>Appropriation/Budget Activity</b><br>3600 / 7 | <b>R-1 Program Element (Number/Name)</b><br>PE 0207444F / <i>Tactical Air Control Party-Mod</i> | <b>Project (Number/Name)</b><br>676013 / <i>Equipment Modernization</i> |
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This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such program funds would be in addition to civilian pay expenses budgeted in program element 0605831F. In FY19 (0) and FY20 (0) was expended for civilian pay expenses in this program element

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

| <b>B. Accomplishments/Planned Programs (\$ in Millions)</b> | <b>FY 2020</b> | <b>FY 2021</b> | <b>FY 2022</b> |
|---|----------------|----------------|----------------|
| <b>Title:</b> Close Air Support System (CASS)               | 4.019          | 12.882         | 13.081         |
| <b>Description:</b> Title: TACP-M Software System (TSS)     |                |                |                |

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| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Air Force |   | <b>Date:</b> May 2021   |
| <b>Appropriation/Budget Activity</b><br>3600 / 7                        | <b>R-1 Program Element (Number/Name)</b><br>PE 0207444F / <i>Tactical Air Control Party-Mod</i> | <b>Project (Number/Name)</b><br>676013 / <i>Equipment Modernization</i> |

| <b>B. Accomplishments/Planned Programs (\$ in Millions)</b>  | <b>FY 2020</b> | <b>FY 2021</b> | <b>FY 2022</b> |
|--|----------------|----------------|----------------|
| <p>Description: The TACP-M Software program will modernize software for Communications, Command and Control (C3) processing systems for multiple TACP mission areas, i.e., ASOC/TOC operations, Mounted operations, and Dismounted operations</p> <p><b>FY 2021 Plans:</b><br/>This includes, but is not limited to:<br/>-Continued to support development of Special Warfare Assault Kit (SWAK) Dismount Special Warfare software.<br/>-Established TACP common software architecture for further development to meet other battlefield airman operational needs.<br/>-Conducted investigations to provide additional feature (capabilities) for the software.<br/>-Integrated WARHAWK (previously named CASS 2.0) with ASOC Mod software acquisition.<br/>-Continued to integrate, and test CASS data communications interfaces with C2 Nodes, CAS aircraft, Army Tactical Network (ATN), Soldier Radios Waveform (SRW) networks, TBMCS, and Mobile User Objective System (MUOS) Satellite Communications (SATCOM) networks to enhance interoperability between TACPs, and other joint warfighters.</p> <p><b>FY 2022 Plans:</b><br/>-Will continue to support development of Special Warfare Assault Kit (SWAK) Dismount Special Warfare software.<br/>-Will continue TACP common software architecture for further development to meet other battlefield Special Warfare airman operational needs.<br/>-Will conduct investigations to provide additional feature (capabilities) for the software.<br/>-Will integrate WARHAWK (previously named CASS 2.0) with ASOC Mod software acquisition.<br/>-Will continue to integrate, and test CASS data communications interfaces with C2 Nodes, CAS aircraft, Army Tactical Network (ATN), Soldier Radios Waveform (SRW) networks, TBMCS, and Mobile User Objective System (MUOS) Satellite Communications (SATCOM) networks to enhance interoperability between TACPs, and other joint warfighters.</p> <p><b>FY 2021 to FY 2022 Increase/Decrease Statement:</b><br/>The increase in budget from FY21 to FY22 is due to increased mission capabilities required for ASOC and Mobile systems.</p> |                |                |                |
| <b>Accomplishments/Planned Programs Subtotals</b>  | 4.019          | 12.882         | 13.081         |

| <b>C. Other Program Funding Summary (\$ in Millions)</b>     |                |                |                               |                              |                                |                |                |                |                |                         |                   |
|--|----------------|----------------|-------------------------------|------------------------------|--------------------------------|----------------|----------------|----------------|----------------|-------------------------|-------------------|
| <u>Line Item</u>   | <u>FY 2020</u> | <u>FY 2021</u> | <u>FY 2022</u><br><u>Base</u> | <u>FY 2022</u><br><u>OCO</u> | <u>FY 2022</u><br><u>Total</u> | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>Cost To Complete</u> | <u>Total Cost</u> |
| • OPAF 03 Line item 837100:<br><i>Tactical C-E Equipment</i> | 35.967         | 50.093         | 52.200                        | -                            | 52.200                         | -              | -              | -              | -              | -                       | -                 |
| <b>Remarks</b>   |                |                |                               |                              |                                |                |                |                |                |                         |                   |

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| Exhibit R-2A, RDT&E Project Justification: PB 2022 Air Force |   | Date: May 2021  |
| Appropriation/Budget Activity<br>3600 / 7                    | R-1 Program Element (Number/Name)<br>PE 0207444F / Tactical Air Control Party-Mod | Project (Number/Name)<br>676013 / Equipment Modernization |

**D. Acquisition Strategy**

TACP-M is executing agile development for the TACP-M CASS software. CASS, Dismount, and ATM software strategy continues the development and deployment process through risk reduction efforts. CASS WARHAWK software strategy is to build off pre-existing software and lessons learned in through Risk Reduction using a separate contract (awarded 1QFY21) for the full agile development of WARHAWK to meet warfighter's needs. WARHAWK will employ a Modular Open Systems Architecture (MOSA) to allow flexible development that will compliment an Agile software effort.

The ASOC modernization effort will research and investigate commercial and government available hardware and software with minimum development to support requirements by utilizing direct user feedback from other TACP-M programs, TACP innovation sites and the UES to quickly leverage capability into the existing weapons platform. The results of these efforts form the basis of the ASOC-Mod to execute prototype and develop efforts to support current requirements.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Air Force** **Date:** May 2021

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| <b>Appropriation/Budget Activity</b><br>3600 / 7 | <b>R-1 Program Element (Number/Name)</b><br>PE 0207444F / <i>Tactical Air Control Party-Mod</i> | <b>Project (Number/Name)</b><br>676013 / <i>Equipment Modernization</i> |
|--|---|---|

| <b>Product Development (\$ in Millions)</b>            |                        |                                |             | FY 2020 |            | FY 2021 |            | FY 2022 Base |            | FY 2022 OCO |            | FY 2022 Total | Cost To Complete | Total Cost | Target Value of Contract |
|--|------------------------|--------------------------------|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item                                     | Contract Method & Type | Performing Activity & Location | Prior Years | Cost    | Award Date | Cost    | Award Date | Cost         | Award Date | Cost        | Award Date | Cost          |                  |            |                          |
| WARHAWK CASS System Software Dev. Dismounted           | Various                | GDIT : WP, OH                  | -           | 1.700   | Mar 2020   | 2.400   | Jun 2021   | 2.443        | Jun 2022   | -           |            | 2.443         | -                | -          | -                        |
| Warhawk CASS System Software Dev. Mounted              | TBD                    | TBD : TBD                      | -           | -       |            | 5.997   | Mar 2021   | 5.880        | Mar 2022   | -           |            | 5.880         | -                | -          | -                        |
| ASOC MOD   | Various                | TBD : Pope AFB, NC             | -           | -       |            | 1.132   | Jan 2021   | 1.012        | Jan 2022   | -           |            | 1.012         | -                | -          | -                        |
| Warhawk CASS Risk Reduction Phase 2                    | SS/CPAF                | GDIT : WP, OH                  | -           | 0.750   | Mar 2020   | -       |            | -            |            | -           |            | -             | -                | -          | -                        |
| WARHAWK CASS NSWC Crane (Naval Surface Warfare Center) | MIPR                   | NSWC Crane : Crane, IN         | -           | 0.988   | Jan 2020   | 0.633   | Jan 2021   | 1.229        | Jan 2022   | -           |            | 1.229         | -                | -          | -                        |
| <b>Subtotal</b>  |                        |                                | -           | 3.438   |            | 10.162  |            | 10.564       |            | -           |            | 10.564        | -                | -          | N/A                      |

| <b>Test and Evaluation (\$ in Millions)</b> |                        |                                |             | FY 2020 |            | FY 2021 |            | FY 2022 Base |            | FY 2022 OCO |            | FY 2022 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|------------------------|--------------------------------|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item                          | Contract Method & Type | Performing Activity & Location | Prior Years | Cost    | Award Date | Cost    | Award Date | Cost         | Award Date | Cost        | Award Date | Cost          |                  |            |                          |
| Test Agency Support                         | MIPR                   | Various : Multiple, FL         | -           | 0.581   | Apr 2020   | 0.942   | Apr 2021   | 0.736        | Apr 2022   | -           |            | 0.736         | -                | -          | -                        |
| <b>Subtotal</b>                             |                        |                                | -           | 0.581   |            | 0.942   |            | 0.736        |            | -           |            | 0.736         | -                | -          | N/A                      |

**Remarks**  
Development, operational and interoperability testing

| <b>Management Services (\$ in Millions)</b> |                        |                                |             | FY 2020 |            | FY 2021 |            | FY 2022 Base |            | FY 2022 OCO |            | FY 2022 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|------------------------|--------------------------------|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item                          | Contract Method & Type | Performing Activity & Location | Prior Years | Cost    | Award Date | Cost    | Award Date | Cost         | Award Date | Cost        | Award Date | Cost          |                  |            |                          |
| Management Services                         | C/CPAF                 | Not specified. : TBD           | -           | -       |            | 1.778   | Jul 2021   | 1.781        | Jul 2022   | -           |            | 1.781         | -                | -          | -                        |
| <b>Subtotal</b>                             |                        |                                | -           | -       |            | 1.778   |            | 1.781        |            | -           |            | 1.781         | -                | -          | N/A                      |

**Remarks**  
PMA funds MITRE, ETASS, PASS, SCS, all multiple contractors.





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**Exhibit R-4, RDT&E Schedule Profile: PB 2022 Air Force** **Date:** May 2021

|  |   |   |
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|--|---|---|

|  | FY 2020 |   |   |   | FY 2021 |   |   |   | FY 2022 |   |   |   | FY 2023 |   |   |   | FY 2024 |   |   |   | FY 2025 |   |   |   | FY 2026 |   |   |   |
|--|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|
|  | 1       | 2 | 3 | 4 | 1       | 2 | 3 | 4 | 1       | 2 | 3 | 4 | 1       | 2 | 3 | 4 | 1       | 2 | 3 | 4 | 1       | 2 | 3 | 4 | 1       | 2 | 3 | 4 |
| WARHAWK Close Air Support System (CASS) ATM Software (v2.2) Design and Development |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |
| WARHAWK Close Air Support System (CASS) ATM Software (v3.1) Design and Development |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |

**UNCLASSIFIED**

**Exhibit R-4A, RDT&E Schedule Details:** PB 2022 Air Force **Date:** May 2021

|  |   |   |
|--|---|---|
| <b>Appropriation/Budget Activity</b><br>3600 / 7 | <b>R-1 Program Element (Number/Name)</b><br>PE 0207444F / <i>Tactical Air Control Party-Mod</i> | <b>Project (Number/Name)</b><br>676013 / <i>Equipment Modernization</i> |
|--|---|---|

**Schedule Details**

| Events by Sub Project   | Start   |      | End     |      |
|---|---------|------|---------|------|
|   | Quarter | Year | Quarter | Year |
| <b>WARHAWK Close Air Support System(CASS)</b>   |         |      |         |      |
| WARHAWK Close Air Support System (CASS) Software )(v1.1) Design and Development (SWAK)                | 1       | 2020 | 1       | 2020 |
| WARHAWK Close Air Support System (CASS) Software (v1.2) Design and Development (SWAK)                 | 2       | 2020 | 1       | 2021 |
| TACP-M Software (v1.0) Design and Development (SWAK)  | 4       | 2020 | 4       | 2022 |
| WARHAWK Close Air Support System (CASS) Dismount Software (v1.3) Design and Development (SWAK)        | 2       | 2021 | 1       | 2022 |
| WARHAWK Close Air Support System (CASS) Dismount Software Design and Development (SWAK)               | 2       | 2022 | 4       | 2022 |
| WARHAWK Close Air Support System (CASS) ATM Software Risk Reduction (1A) - Architecture               | 1       | 2020 | 2       | 2021 |
| WARHAWK Close Air Support System (CASS) ATM Software Risk Reduction (1B)-capabilities, modem and apps | 1       | 2021 | 2       | 2021 |
| WARHAWK Close Air Support System (CASS) ATM Software (v2.0) Design and Development                    | 2       | 2021 | 2       | 2022 |
| WARHAWK Close Air Support System (CASS) ATM Software (v2.1) Design and Development                    | 2       | 2021 | 1       | 2022 |
| WARHAWK Close Air Support System (CASS) ATM Software (v2.2) Design and Development                    | 2       | 2022 | 4       | 2022 |
| WARHAWK Close Air Support System (CASS) ATM Software (v3.1) Design and Development                    | 2       | 2022 | 4       | 2022 |

**Note**

IOC & FOC dates are based on Objective and not Threshold dates.